REMARKS

The Office Action dated November 10, 2005, has been received and reviewed.

Claims 1-22 are currently pending in the above-referenced application. Claims 6, 7, 15 and 21 have been withdrawn from consideration pursuant to a species election requirement. Claims 1-5, 8-14, 16-20, and 22, which have been considered, stand rejected.

Reconsideration of the above-referenced application is respectfully requested.

Rejections under 35 U.S.C. § 103(a)

Yoon in view of Chia

Claims 1-5, 9, 10, 16-20, and 22 stand rejected under 35 U.S.C. § 103(a) for reciting subject matter which is assertedly unpatentable over the subject matter taught in U.S. Patent 6,479,887 to Yoon et al. (hereinafter "Yoon"), in view of teachings from U.S. Patent 5,744,084 to Chia et al. (hereinafter "Chia").

The standard for establishing and maintaining a rejection under 35 U.S.C. § 103(a) is set forth in M.P.E.P. § 706.02(j), which provides:

> To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Yoon teaches a semiconductor package including a substrate 30, flexible insulating layer 18, and a solder mask layer 19 with either dam 31 or dams 32 or 32' disposed on the solder mask layer 19. *See* Fig 15A or 15B. The dam 31 or dams 32 or 32' may constrain encapsulant 50 in opening 16. *See, e.g.*, Fig. 15A, 15B.

Chia teaches a process used to accommodate substrates of varying thickness during plastic overmolding. In the process, mold halves 102, 104 that are configured to encase a typical carrier substrate are used. The mold halves 102 and 104 are only configured to retain carrier substrates of a particular thickness. In order to facilitate the use of thinner carrier substrates with the mold, a dam (or seal) 120 may be constructed to compensate for the difference in thickness between the carrier substrate to be inserted into the mold and the carrier substrate thickness for which the mold was designed. Figs. 1, 1A, col. 3, lines 1-10. Depending upon the thickness difference to be accommodated, the dams (or seals) 120 may include multiple layers. Thus, the dam 120 of Chia could be more accurately referred to as a "shim" since its primary purpose is to compensate for substrates of different thickness. The dam structure of Chia could also be more accurately be referred to as a "seal", since the encapsulant is injected under pressure into cavity 110 and is primarily constrained by the mold half 102 rather than the dam 120.

Due to the dissimilarity of apparatus of Yoon and the process disclosed by Chia, there is no motivation for one of ordinary skill in the art to combine the references. Thus, teachings from Yoon and Chia cannot be relied upon to establish a *prima facie* case of obviousness under 35 U.S.C. § 103(a). This is because the dams disclosed in these references are used for entirely different, nonanalogous purposes.

Looking to Yoon, the semiconductor device 1 is not enclosed in a mold, and the encapsulant is simply disposed on the desired feature within the confines of a dam structure or structures. The dam 31 or dams 32 and 32' are constructed upon the solder layer 19 and include protruding portions that are configured to constrain the lateral flow of a viscous encapsulant 50. *See* Figs. 13, 15A, and 15B. When the encapsulant 50 is added to opening 16, the encapsulant 50 fills the opening 16 and overflows onto bond fingers 14, covering lead wires 40 until the flow is limited by the protruding portion of dam 31 or dams 32 and 32'. *Id.* The encapsulant 50 may only be added until the level of the encapsulant 50 is substantially equal with the height of the dam structure or structures, if this level is exceeded, the encapsulant 50 will spill over the dam structure or structures and onto adjacent components. *Id.* Thus, the protruding portions of the dams 31, 32, 32′ of Yoon are configured to act as a barrier to the flow of encapsulant 50.

As one of ordinary skill in the art, without the benefit of hindsight that the claims and disclosure of the above-referenced application provide, would have merely expected that forming the protruding portions of the dams of Yoon from a plurality of adjacent, mutually adhered regions would unnecessarily complicate the fabrication process, there would have been no reason for one of ordinary skill in the art to use such a process to form the dams.

While the dams of Chia may include multiple layers, it appears that multiple layers are merely employed if a single layer will not accommodate the difference between the thickness of carrier substrate the mold is designed to hold and the thickness of the carrier substrate that has actually been placed in the mold. Moreover, when a carrier substrate is fully enclosed within a cavity formed by the mold halves 102 and 104, the dam structure 120 is engaged by the top mold half 102, then covered by encapsulant, which substantially exceeds the height of the dam structure 120 as the encapsulant fills the open space within the mold cavity. *See, e.g.,* col. 5, line 28; Fig. 1.

As the "dams" taught in Yoon and Chia do not serve similar purposes, it is not understood how one of ordinary skill in the art could have been motivated to combine their teachings in the manner that has been asserted.

Accordingly, it is respectfully submitted that the subject matter recited in each of claims 1-5, 9, 10, 16-20 and 22 is, under 35 U.S.C. § 103(a), allowable over the subject matter taught in Yoon and Chia.

Yoon, Chia, and Knecht

Claim 8 stands rejected under 35 U.S.C. § 103(a) for reciting subject matter which is assertedly unpatentable over that taught in Yoon, in view of the subject matter taught in Chia and, further, in view of teachings from U.S. Patent 5,577,319 to Knecht (hereinafter "Knecht").

Claim 8 is allowable, among other reasons, for depending directly from claim 1, which is allowable.

Yoon, Chia, and Amagai

Claims 11-14 stand rejected under 35 U.S.C. § 103(a) for reciting subject matter which is allegedly unpatentable over the teachings of Yoon, in view of teachings from Chia and, further, in view of the subject matter taught in U.S. Patent 6,144,102 to Amagai (hereinafter "Amagai").

Claims 11-14 are each allowable, among other reasons, for depending indirectly from claim 1, which is allowable.

ELECTION OF SPECIES REQUIREMENT

It is respectfully submitted that independent claim 1 remains generic to all of the species of invention that were identified in the Election of Species Requirement in the above-referenced application. In view of the allowability of independent claim 1, claims 6, 7, 15, and 21, which have been withdrawn from consideration, should also be considered and allowed. M.P.E.P. § 806.04(d).

CONCLUSION

It is respectfully submitted that each of claims 1-5, 8-14, 16-20, and 22 is allowable. An early notice of the allowability of each of these claims is respectfully solicited, as is an indication that the above-referenced application has been passed for issuance. If any issues preventing allowance of the above-referenced application remain which might be resolved by way of a telephone conference, the Office is kindly invited to contact the undersigned attorney.

Respectfully submitted,

Brick G. Power
Registration No. 38,581
Attorney for Applicant
TRASKBRITT, PC
P.O. Box 2550
Salt Lake City, Utah 84110-2550
Telephone: 801-532-1922

Date: February 10, 2006

BGP/dlm:eg
Document in ProLaw